THE IMPROVEMENT OF A TRACEABILITY PRACTICE AT A HUNGARIAN PRODUCER ORGANISATION

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ABSTRACT
A food traceability system enables to follow the movement of any food product by documentation of each point of food handling. It is important to fully be aware that the traceability system is a special tool for attaining that objective, but the establishment of traceability system itself does not let as an objective. The traceability process enables trading stakeholders to follow products as they move from field to retail store. Each traceability partner must be able to identify the direct source and direct recipient of product. Among the priorities of traceability the most important is to protect the consumer through fast and accurate identification of implicated product. The necessity of the follow up systems are unquestionable, thus the recognition of good practices can ensure the better realizations. The main goal of this paper on the one hand is the shaping how traceability appears in the practice of fresh vegetable and fruit sector, on the other the assay of a traceability system at a selected Hungarian Producer Organization (PO).

Keywords: Traceability, Vegetable, Producer Organisation

INTRODUCTION

Producer Organizations (POs)

In the previous regime the domestic agriculture could be characterized by multiple integration forms of agricultural producers, which were disappeared due to the ownership and organizational changes. Although the accession to the European Union gave new possibilities to the promotion of alliances, but this time cannot produce the spectacular success in practice. Opposing position about integration was not formulated, and the producers agreed in relation to the stronger and more organized market participants (buyers, distributors, processors) that only are able to peer action, if at least the sales are managed together in a coordinated way.

The PO is not an independent company law form but a title can be obtained by a recognition procedure. This title expresses a determining role in the regulation and coordination of producers in the EU fresh fruit and vegetable sector. The base of a PO is a well-functioning economic organization, which is generally cooperative, but can be operated as a limited or joint stock company. For the PO classification strict requirements must be performed. The most important elements are the followings (BARTA ET. AL., 2010):

- Ensuring the adjustment of the production to the demand in relation to the quantity and quality.
- Concentrating the product line, stabilizing the prices of producers.
- Building up domestic and foreign relationships
- Recording crop production activities of their members
- Purchasing materials and equipments for the members.

- Providing the full technical background for the storage, preparation and sale of products
- Providing leaders and workers with the skills necessary to function
- Continuous contact between the members of PO and the external partners which have impact on the operation
- Promoting environmentally friendly production methods and waste management procedures.

In the EU the market of fresh fruits, vegetables and raw materials are less regulated. The market regulation does not establish limits, quotas, but defines strict quality requirements. Thus the resistance of the producer in the market is the base of the competition. Nowadays the market regulation and the support are based on the producer organizations. (ERDÉSZNÉ ET. AL., 2009)

Traceability systems

Traceability systems cover all types of food and related products in the entire food chain and affect food businesses from farm suppliers to retailers. Feedstuffs and other farm supplies needed to produce food, are included, as well as food contact materials such as packaging. A food traceability system enables to follow the movement of any food product by documentation of each point of food handling. It is important to fully be aware that the traceability system is a special tool for attaining that objective, but the establishment of traceability system itself does not let as an objective. Internationally, the definition of food traceability was set at Codex Alimentarius Commission (CAC, 2004). ISO Standard 22005 gives guidance on how an organization would determine which information would enter an organization-specific traceability program design. The framework established by this standard provides for a large degree of flexibility, primarily oriented to business to business transactions and value chains (ISO 22005:2007).

Principles of food identification

Food business operators at each stage of food chain should at least set a rule to identify food (products and raw materials) and its suppliers and buyers, and to interlink in advance. Food (products and raw materials) identification and linkage 5 area are the fundamentals in ensuring traceability. When constructing a traceability system, it is necessary to fulfill the following principles regarding identification and linkage (FMRIC, 2008):

Identification contains the first three principles:

1. Definition of traceable unit (Setting the traceable unit of the products and raw materials at necessary point of each stage)
2. Setting a rule on identification (ID)
3. Segregation management (Setting the method to segregate and manage food products and raw materials for each identified unit/traceable unit)

The responsibility of Food Business Operator (FBO) and the linkage between FBOs can be found in the Fig 1. Principles of linkage (4, 5 and 6) are the followings:

4. Ensuring one step back traceability (Setting the rule on linking the raw material's traceable unit and its supplier and setting the recording form)
5. Ensuring internal traceability (Setting the rule to link a traceable unit of raw materials with that of in-process and finished products and setting the recording forms. If raw materials or products are combined or divided, set the rule on linking

the traceable unit before the combination or division with that after such work, and set the forms to record it.)

6. Ensuring the one step forward traceability (Setting the rule on linking the product's traceable unit and its buyer and setting the recording form)

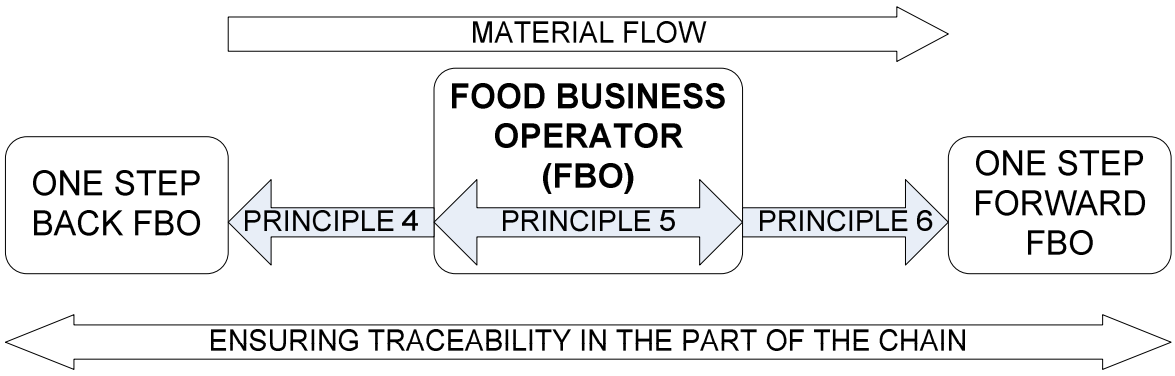

Figure 1. **Principle of linkage (4,5,6) that each food business operator fulfills**
Source: on the base of (FMRIC, 2008) pp. 27.

Applying principles 4, 5 and 6 for all partners, the traceability in the entire food chain can be ensured. (see Fig 2.)

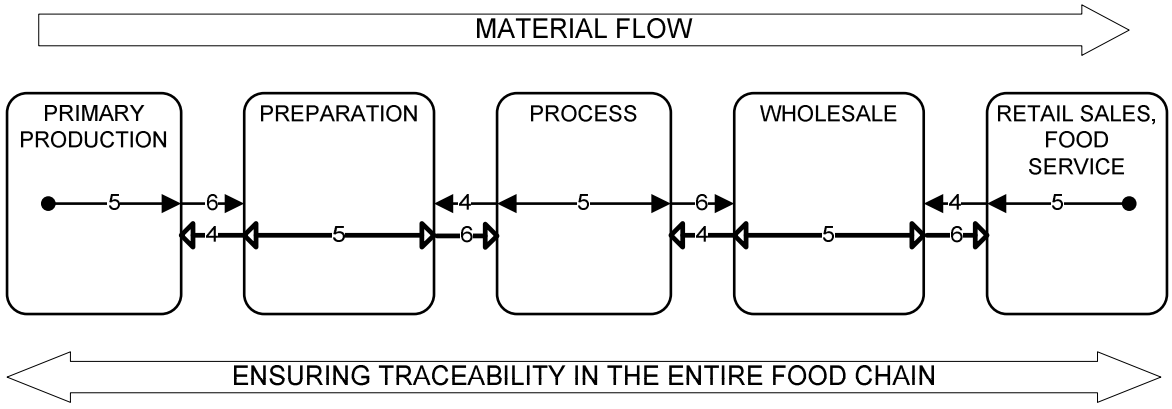

Figure 2. **The entire food chain traceability has been ensured if the food business operator at each stage fulfills the requirements of principles 4, 5 and 6**
Source: on the base of (FMRIC, 2008) pp. 27.

Next two principles (7 and 8) refer to the media for identification, records, and transmission:

7. Method of attaching ID (Setting the method to attach the ID on the traceable unit (such as stamping, printing, label, electronic tags, etc)
8. Media for information recording and transmitting (Determining the media to record, store and transmit the information which had been read for identification and linking - such as paper documents, electronic database, label, electronic tags)

Establishing a procedure is the last principle

9. Setting the procedure to actualize, following the methods and forms set above

The Hungarian fresh vegetables-fruits sector

The domestic fresh vegetable and fruit sector has undergone a significant transformation since the regime. The most important changes were the presence of POs, the increasing power of the retail chains, and the change of the consumer's buying habits in this sector. Before 1989 the state owned wholesalers gave the connection between the grower and the smaller retailers. From the regime till the connection to EU the private wholesaler and retail chains are gradually evolved. In the last decade beyond the private wholesaler and retail trade, the producer co-operatives have appeared between growers and large-scale retail chains. (LEHOTA ET. AL., 2009). Regarding the producer cooperatives the main issues and conclusions about traceability of this research are the followings:

- They realized the importance of the improvement of the traceability system.
- The main advantages of the traceability systems are the expand of activity in the market, tool to satisfy the purchasers' and consumer demands, and cost reduction originating from less safety hazards.
- Traceability system is typically paper-based, and completed by the use of EAN-code. A minor part of the producers' cooperatives apply product recalling program, hazard handling system for treatment and registration of claims

Traceability Standards

GS1 standards are the common language of business and provide the framework required to support the traceability (business) process. This industry best practice implementation guideline is based on the GS1 Global Traceability Standard (GTS). Developed by industry, the standard defines the globally-accepted method for uniquely identifying:

- Trading parties (your suppliers, your own company, your customers, 3rd party carriers)
- Trading locations (can be any physical location such as a warehouse, packing line, storage facility, receiving dock or store)
- The products your company uses or creates
- The logistics units your company receives or ships
- Inbound and outbound shipments

The GTS also defines the essential pieces of information that have to be collected, recorded and shared to ensure one step up, one step down traceability. The standard is applicable to companies of all size and geography.

While the GTS may be implemented independently from any specific technology, best business practices require adoption of bar coding on cases and/or pallets. Businesses are further encouraged to adopt electronic messaging to exchange essential business information. These technologies will be explored in the sections that follow.

GS1 is a not-for-profit standards organization with member affiliates in every country. Together with local/national produce trade associations they are important resources that are able to help your company understand the most effective way to implement traceability with your trading partners. They can also help your company to connect with technology providers that serve the produce industry. (GS1, 2009)

DélKerTÉSZ Producer Organization

The PO was established at the end of 2002 with 230 members. In 2003 the organization received preliminary, and in 2004 final PO recognition. The main objective of the organization is to ensure safe income and living of the individual producers, family and social entrepreneurs in Szentes and surrounding settlements. In 2010 it had the largest

income between domestic POs, with 530 members. In this year 95% of production was grown in plastic tunnels and greenhouses, the value of sold fresh vegetables was 5 billion Ft. The main customers are the retail chains, with 65% of the products, while 20% has been exported. The export of pepper is directed to Germany, the Czech Republic, Austria and Slovakia. The cabbage sorts to Scandinavian and Baltic countries. The Organization's packing estates all possess the HACCP qualification, while 95% of forced products have GLOBALGAP qualification. The organization regularly participates in exhibitions, and has many awards and prizes. One of the most important recognition is the Hungarian Agriculture Quality Award in 2008.

MATERIAL AND METHOD

This paper in one hand gives an overview about traceability in the fresh fruit and vegetable sector. On the other hand proposes a development for the selected PO's practice. One of the authors is the QM manager of this organization, who has responsibility for the operation of traceability system. With her assistance an inner analysis was done about the efficiency and effectiveness of the applied system. The survey was based on personal discussions with the leaders, representatives of affected areas, moreover with the producers and partly the customers.

RESULTS

Application of the new traceability system

From the start of the co-operation a certain level of traceability was necessary, to ensure identification the product of producer, e.g. in case of complaints. The identification was done on the price label, with the code of producer (e.g. Katalin Hegedűs H001), with the quality (e.g. TV pepper 50/80) and volume (12 kg) of the product, moreover the submission date (28. 10.) was indicated. This check paper had to be done in every box or compartment of producer, this tag accompanied the product to the contact. In case of any objection this card helped the identification of the producer. Since the demand of packed product was low (only 10-15% of the total sale), this system was sufficient. Currently more than 75% of the PO's commodity gets into the partners in packaged form. This necessitated the continuous development of traceability and identification, and as the first step of this result the bar code system was introduced in 2005.

Introduction of traceability at the producer

Due to the changing environment the existing traceability system has to be changed according to the regulatory compliance and the internal expectations of the organization. It has become indispensable that the commodity, the production site and production should be more precisely identified. All suppliers receive a unique number, which may be escorted through the product's life inside and outside of the PO. Independent identification has to be made about producers who involved to the GLOBAGAP registration. The PO's internal audits monitor the compliances according to the requirements of the standard.

Identification after the receipt of goods

One type of identification is, when the incoming good goes to further packing. On the packing unit the producer identification (lot number) can be found.

At the first step the product gets into the freight warehouse (01), with the following identifications: lot number, volume and date of receipt.
From the warehouse (01) the good is transferred to the packaging (10), and get an item number. The item number has 6 characters, the first two is the month, the second two is the day and the third two is a rolling number assigned to the production. (E.g. 060502 means that at 5th of June "TV 500g KK" was transferred) The lot number and the date of receipt are assigned to this item number.

The labels of identifications
Labels used to designate the goods are mostly prepared at the co-operative, partly pre-ordered from the manufacturer. Undated labels can be pre-manufactured, as the orders are changing day by day. The structure of the bar code is the following: the first 7 number is the receiving code of the supplier, the second 7 number characterize the product and its quality, and the third 6 numbers indicate if the product was quality assured or not. Using the lot number the relationship between the purchaser and supplier can be retrieve at any time. Custom-developed software is an integral part of the system. The program on one hand communicates with the barcode reader, on the other prepares the documentation (report) of the movement. The prerequisite of the system operation that the packaging unites, which contain same quality items, have to clearly identify with a barcode. (This unit can be a case, a pallet or a package.)

CONCLUSIONS

The traceability system of the examined PO is suitable to satisfy the regulatory and trading partner requirements. The producers of the co-operation are able to prepare high quality and chemical-free commodities. The gradually increasing demand for packaged products requires further developments and investments. The data entry and data processing efficient, but the human factor is potential for mistakes with increasing movement of goods. Checking the possibilities a barcode scanner port could be incorporated, making possible multiple scanning. In the case of this installation the current producer identification label is no longer suitable to identify the goods, since the barcode does not identify producer only the receiving location, the quality and classification of the good.
Since the current IT system and character support of the printers are suitable to permit the unique identification of producers, the incorporation of producer names (codes) has been proposed into the barcode. This case the barcode reader can identify immediately the producer and his product, and transfer the data to the system. The installation such a barcode system has a high cost (three gates would require), thus the co-operative is not planning this investment now, but they are ready to introduce if the conditions allow.

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